

- b. exposing the transgenic organism to a water sample to be tested for a time sufficient to allow contaminants become bioconcentrated within the transgenic organism;
- c. exposing the transgenic organism to conditions permitting expression of the at least one reporter gene; and
- 5 d. detecting the expression of the at least one reporter gene; and
- e. correlating the detected expression to known standards and thereby determining the quantity of contaminants in the water sample.

2. A method of measuring contaminants in water comprising:

- a. introducing into a transgenic organism a DNA construct having the sequence of two or more regulatory response element genes operatively linked to a DNA molecule encoding at least one reporter gene such that a regulatory elements of the gene controls expression of the reporter gene;
- 5 b. exposing the transgenic organism to a water sample to be tested for a time sufficient to allow contaminants become bioconcentrated within the transgenic organism;
- c. exposing the transgenic organism to conditions permitting expression of the reporter genes; and
- 10 d. detecting the expression of the reporter genes; and
- e. correlating the detected expression to known standards and thereby determining the quantity of contaminants in the water sample.

6. The method according to claim 5 wherein the transgenic organism is exposed the water sample for at least one minute.

7. The method according to claim 5 wherein the transgenic organism is exposed the water sample for at least 2 minutes.

8. The method according to claim 5 wherein the transgenic organism is exposed the water sample for at least one hour.

9. The method according to claim 5 wherein the transgenic organism is exposed the water sample for at least 12 hours.
10. The method according to claim 5 wherein the organism is exposed the water sample for at least 24 hours.
27. The method according to claim 18 wherein the transgenic organism is exposed to a water sample to be tested continually wherein the organism is removed from the water sample repeatedly at selected intervals exposed to conditions permitting expression of the reporter gene and detected for reporter gene expression wherein such repeated exposures and detecting of expression is effective to track a time course of contaminant levels.
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32. The method according to claim 22 wherein the contaminants become bioconcentrated at least 1,000-fold, relative to the water in the tissues of the organism.
37. The method according to claim 22 wherein the luciferase system is derived from a species selected from the group consisting of Aequorea victoria and Aequorea forskalea.

Attached hereto is a marked-up version of the changes made to the specification and claims by this current amendment. This page is located at the end of this response and is captioned "**Version with Markings to Show Changes Made.**"

Respectfully submitted,

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